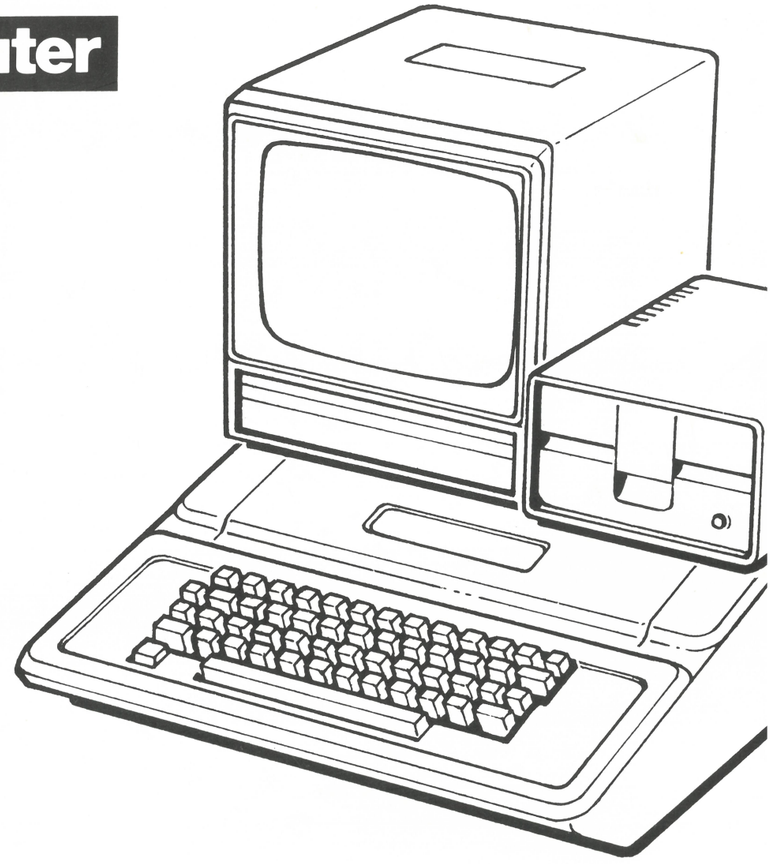
E.M.E

microcomputer program



CLASSIFICATION

STUDY GUIDE

by

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Addison Wesley Science Series

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This program uses a high-speed operating system called Diversi - DOS (tm) under license. For information contact DSR, Inc., 34880 Bunker Hill, Farmington MI 48018.

OVERVIEW

The E.M.E CLASSIFICATION OF OBJECTS program introduces lower and middle grade elementary students to the concept of classification. The program consists of two parts:

1. Explanation -- describes sorting into groups by one or two common characteristics such as shape, number of sides or number of dots. A convenient forward/backward feature allows review at any point.

2. Quiz -- consists of 15 randomly-selected questions. Tests student understanding by having them check sets of five objects and identify the one that does not "belong". A short explanation is provided for incorrect answers. Quiz score is given at the end.

After your students study the Explanation section of the program, they will be ready to create classification systems of their own and to solve the problems in the Quiz portion of the program.

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OBJECTIVES

The following concepts are developed in the program:

1. Classification is based on sorting things into groups that share the same characteristics, for example, circles, squares, triangles or objects with the same number of sides or holes.

2. Objects with a given characteristic make up one group (all are triangles, plants, or animals).

3. A large group of objects can be divided into two or more smaller groups. For example, a group of triangles could be sorted into groups by color. Then each group could be subdivided into large and small triangles.

4. Knowing the characteristics of a group helps students to understand members of that group and can assist in identifying unknown objects.

After using the program the students will be able to:

1. Recognize similar and different characteristics of a group of objects.

2. Recognize that a group of similar objects may be divided into smaller groups.
3. Develop a system that classifies objects by one or two properties.
4. Use someone else's classification system to identify an object.

USING THE PROGRAM

The CLASSIFICATION OF OBJECTS program is easy to use and is under your control at all times. The program loads automatically and is ready to use immediately. We suggest that students start with the Explanation section. This portion provides the student with background information needed to understand classification and answer the quiz. The program is designed for Grades 2 and up.

You may wish to assign one student who has taken the quiz as your representative at the computer to record the scores of other students who take the quiz. The Quiz section of CLASSIFICATION OF OBJECTS may also be used as an evaluation instrument by teachers who have completed a unit on this topic. The program can also be used by students in the upper grades as an introduction to taxonomy, the classification of plants and animals.

BACKGROUND

Classification is the organizing of objects into groups that share one or more common characteristics or properties.

People arrange all kinds of things into groups. Dishes and silverware are organized into groups and places in the family kitchen or dining room. Libraries and supermarkets are excellent places to see classification systems in use. People are grouped according to their occupation -- auto mechanics, truck drivers, police, teachers, politicians, and so on. Foods can be classified as sweet, sour, bland or spicy. Materials to make clothes can be grouped by their texture such as rough, smooth, silky or fuzzy.

Classification is especially valuable in science for it brings order to a problem and enables us to find patterns or relationships helpful to understanding. For example, rocks may be classified according to their origin, elements by their chemical properties, plants according to whether or not they produce seeds and animals by those that have backbones and those without.

ADDITIONAL ACTIVITIES

You may wish to extend the concepts covered in the program by introducing more shapes or shapes made of different colored papers. Use red, green, blue and yellow circles, squares, triangles and other geometric shapes.

Other activities for students include the following:

1. Classifying animals into groups that fly, swim, crawl, walk, creep or hop. For the younger student it would be wise to have pictures of animals cut from old magazines available so they could place them in the proper group.
2. Children enjoy building classification systems using buttons. They are excellent objects to classify because they have many different characteristics. Some have two holes, others four. Buttons can be made from wood, metal, glass, plastic, shells or leather. Some are round, others square and they come in many different colors. This activity develops the concept that within a group of objects there are differences.
3. Another activity that involves children in building classification systems is using seeds they have collected from foods they have eaten. Which of these seeds come from plants considered trees (apple, peach)? Which come from plants not considered trees (beans, pumpkin, cucumber, squash)? This activity can be extended by having the children bring in pictures of foods that grow above the ground (pears, lettuce, berries, cabbage, peppers) and those that grow below the ground (beets, carrots, peanuts, radishes, potatoes).
4. Collect different kinds of leaves including leaves from different varieties of oak or maple trees. This introduces the concept of multi-level classification.
5. Have students read and describe how the following library books use classification:

   Elswit, Sharon: ANIMAL HOMES, Golden Books, New York, 1984

   Sattler, H.: DINOSAURS OF NORTH AMERICA, Lothrop, Lee & Shepard, New York, 1981

   Selsam, M. and Hunt, J.: A FIRST LOOK AT BIRDS NESTS, Walker, New York, 1984

GLOSSARY

characteristic, attribute, trait: A property or distinguishing quality such as tall, heavy or red.

classification: A system developed by sorting into groups with common characteristics.

sort: To place in a specific group or separate from others that differ.

taxonomy: A classification system especially of plants and animals.

TEXTBOOK CORRELATION GUIDE

Addison Wesley Science	Book 2, Chapters 2,10 Book 5, Chapter 1
Coronado Science & Technology	Book 2, Unit 5 Book 4, Unit 4, Chapters 11-13
Harcourt Brace Science	Book 1, Units 2,3,6 Book 2, Units 1,2,5
Heath Science	Book 1, Unit 2
Holt Elementary Science	Book 2, Unit 5, Chapters 1-6
Laidlaw Exploring Science	Book 1, Unit 2 Book 2, Unit 2
Merrill Accent on Science	Book 1, Chapter 2 Book 2, Chapter 1 Book 3, Unit 1, Chapter 1 Book 4, Unit 4, Chapter 2 Book 5, Unit 1, Chapters 1,2
Scott Foresman Science	Book 1, Chapter 6 Book 2, Chapter 3 Book 5, Chapter 1
Silver Burdett Science	Book 1, Chapters 1-5 Book 2, Unit 4 Book 3, Unit 1, Chapter 4 Book 4, Unit 1, Chapter 2 Book 5, Unit 1, Chapters 2,3

Name_____ Student Worksheet

CLASSIFICATION

1. Circle the object that does not belong in each group.

A.

B.

C. APPLE SPINACH TOMATO PEAR

D. BOOK PEN CRAYON PENCIL

2. Sort these items into two groups. What name would you give to each group?

dog	rose	fish	peach
eagle	whale	orange	grass
tree	turtle	gerbil	elephant

Group 1 Name_____ Group 2 Name_____

3. Classify these animals according to the most important way they move. Fill in chart.

butterfly	tiger	snail
turtle	bee	cat
snake	trout	robin
worm	eel	whale

SWIM	CRAWL	WALK OR RUN	FLY

4. Some animals have backbones -- these animals are called vertebrates. Animals without backbones are called invertebrates. List each animal under in its correct class.

goat	sponge	dog
bee	dinosaur	worm
rabbit	bluebird	fly
frog	shark	lobster

VERTEBRATE	INVERTEBRATE

STUDENT WORKSHEET ANSWERS

1. A rectangle (only four-sided figure)

   B hexagon (only shape without a dot)

   C spinach (only non-fruit)

   D book (only non-writing instrument)

2. Animals: dog, eagle, elephant, turtle, fish, gerbil, whale

   Plants: tree, rose, orange, peach, grass

3.

SWIM	CRAWL	WALK OR RUN	FLY
trout	snake	tiger	butterfly
eel	snail	cat	robin
whale	worm	turtle	bee

4.

VERTEBRATES	INVERTEBRATES
goat	bee
rabbit	sponge
dinosaur	worm
bluebird	fly
dog	lobster
shark	frog